

CRETACEOUS FAUNAS FROM ZULULAND AND NATAL,  
SOUTH AFRICA  
A NEW GENUS AND SPECIES OF GASTROPLITINAE FROM THE  
MZINENE FORMATION (ALBIAN)

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(With 7 figures)

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ABSTRACT

*Alopecoceras* gen. nov., type species *Alopecoceras ankeritterae* sp. nov., is a unique Southern hemisphere homoeomorph of the Boreal genus *Neogastrolites* McLearn, 1930, which occurs in the low Middle Albian Mzinene Formation (Albian III) of the Mzinene River, Zululand. Whereas *Neogastrolites* evolved from *Gastrolites* McLearn, 1930, by acquisition of umbilical and ventral nodes and is of late Albian age, *Alopecoceras* is believed to be derived from *Hatchericeras* Stanton, 1910, by a similar acquisition of nodes. The genus also shows similarities to *Tetrahoplitoides* Casey, 1954.

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INTRODUCTION

The Mzinene Formation exposed along the Mzinene River 1 200 m north-east of the farm Amatis, north of Hluhluwe, Zululand (locality 35 of Kennedy & Klinger (1975: 28), 27°58'03"S, 32°18'34"E) has yielded a series of remarkable specimens which closely resemble the exclusively boreal late Albian ammonite genus *Neogastrolites* McLearn, 1930 (see Reeside & Cobban 1960 for extensive illustration of the genus) in association with a fauna of low Middle Albian age in part described by the authors in previous publications (Kennedy & Klinger 1977, 1978, in press; Klinger 1976; Klinger, Wiedmann & Kennedy 1975), and including *Carinophylloceras collignoni* Klinger, Wiedmann & Kennedy, *Ammonoceratites* (*Ammonoceratites*) *mahadeva* (Stoliczka), *Anagaudryceras buddha*

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(Forbes), *Protanisoceras* (*Rossalites*) aff. *superbus* Collignon, *Lyelliceras* and *Douvilleiceras* species.

Further study has shown that the material represents a new genus and species which is a heterochronous homoeomorph of *Neogastrolites*, and is described below as *Alopecoceras ankeritterae* sp. nov.

All specimens are housed in the British Museum (Natural History) and the Geological Survey of South Africa, designated BMNH and SAS respectively.

#### SYSTEMATIC PALAEOLOGY

Superfamily HOPLITACEAE H. Douvillé, 1890

Family **Hoplitidae** H. Douvillé, 1890

Subfamily Gastroplitinae Wright, 1952

Genus *Alopecoceras* Kennedy & Klinger gen. nov.

#### *Type species*

*Alopecoceras ankeritterae* gen. et. sp. nov., low Middle Albian, Zululand.

#### *Derivation of name*

*Alopex* (Greek) fox.

#### *Diagnosis*

Initially depressed, whorl section trapezoidal with sparse conical or bullate umbilical nodes giving rise to pairs of ribs with additional ribs intercalated; all ribs bearing conical ventral tubercles and connected across the fastigiate venter by a much thickened rib. Whorl section becomes compressed and lanceolate in later growth, venter narrowly rounded and ornament reduced to low falcoid ribs with interspaces sometimes accentuated into feeble constrictions. Suture line with moderately incised bifid elements.

#### *Discussion*

*Alopecoceras* closely resembles *Neogastrolites* McLearn, 1930, but is of low Middle Albian age whereas that genus, a descendant of *Gastrolites* McLearn, 1930, is of late Albian age. Because of the great intraspecific variation in *Neogastrolites* (see Reeside & Cobban 1960) it is a little difficult to make overall statements of difference, but in general *Alopecoceras* is consistently more evolute, tubercles are lower on the flank, ribs fewer and less flexuous in juveniles, the ventral ribbing thicker and less convex.

*Neogastrolites* typically develops a siphonal tubercle and is rostrate; neither of these features are seen in *Alopecoceras*, whilst the suture lines are more intricately subdivided.

When adult, *Neogastrolites* may become smooth and very compressed (e.g. Reeside & Cobban 1960, pl. 17 (figs 17, 22), pls 18–19), but lack the

flexuous branching ribs and feeble constrictions of *Alopecoceras*. Furthermore, these individuals have slender, feebly ornamented inner whorls; individuals of a similar degree of inflation to *Alopecoceras ankeritterae* retain strong ribs and nodes to a great size (Reeside & Cobban 1960, pl. 11 (figs 16, 20), pl. 12 (figs 11–12, 16), pl. 36 (figs 1, 5, 9–11)).

*Alopecoceras* can be easily separated from *Gastroplites* McLearn, 1930 (see Reeside & Cobban 1960 pls 8–9), for that genus does not possess umbilical bullae and is usually more involute.

*Lemuroceras* Spath, 1942, never develop strong umbilical nodes, shoulder tubercles or a fastigiate venter (see illustrations in Collignon 1963).

*Arcthoplites* Spath, 1925 (see illustrations in Casey 1965, text-fig. 177), and *Subarcthoplites* Casey, 1954, both have strong, narrow ribs, round venters and lack tubercles, as does *Cynahoplites* Spath, 1922.

*Alopecoceras* shows closer similarities to *Tetrahoplitoides* Casey, 1954 (see Fig. 7H–J): both have a trapezoidal whorl, although, in the type species at least, the whorls are slender, the umbilical tubercles are bullate and not conical as in *Alopecoceras*. The venter is narrower in *Tetrahoplitoides*, flat rather than fastigiate, and lacks ventrolateral tubercles.

#### *Evolutionary origins*

*Alopecoceras* occupies an isolated geographic position, and its evolutionary origins are far from obvious in the remaining faunas of both the South African and Madagascar Albian. C. W. Wright has, however, called our attention to its similarities to the genus *Hatchericeras* Stanton, 1901. Originally described from Patagonia, this genus was referred to the Neocomitinae Spath, 1924, in the *Treatise*, and regarded as of possibly Lower Hauterivian age. Subsequent publication by Leanza (1970) has show it to be an early Albian gastroplitinid. During middle growth (Fig. 7A–D) it differs from *Alopecoceras* very obviously in the lack of umbilical nodes and in possessing numerous flexuous ribs. There are, however, blunt thickenings of the ribs—incipient tubercles—at the ventrolateral shoulder in some species, and a broad, blunt rib crosses the venter.

Adults (Leanza 1970, fig. 31a–b) are compressed, with a rounded venter, feeble flexuous ribs and striae, plus feeble constriction-like folds. The sutures (Fig. 6C) of the two genera are also constructed on the same plan, with a similar degree of incision.

The authors would conclude, therefore, that *Alopecoceras* is an offshoot of *Hatchericeras* which has developed prominent umbilical nodes, accentuated the ventral tubercles present in some of the latter, and developed a fastigiate rather than flattened venter: it is a homoeomorphous Southern hemisphere analogue of *Neogastroplites* rather than a close relative.

#### *Occurrence*

*Alopecoceras* is known only from the low Middle Albian of Zululand.

*Alopecoceras ankeritterae* gen. et. sp. nov.

Figs 1-4, 5A-B, 6, 7E-G

*Holotype*

BMNH C81266 from locality 35, cliff and stream sections extending over several hundred metres along the Mzinene, approximately 1 200 m north-east of the farm Amatis, north of Hluhluwe, Zululand, 27°58'03"S 32°18'31"E Mzinene Formation, Albian III.

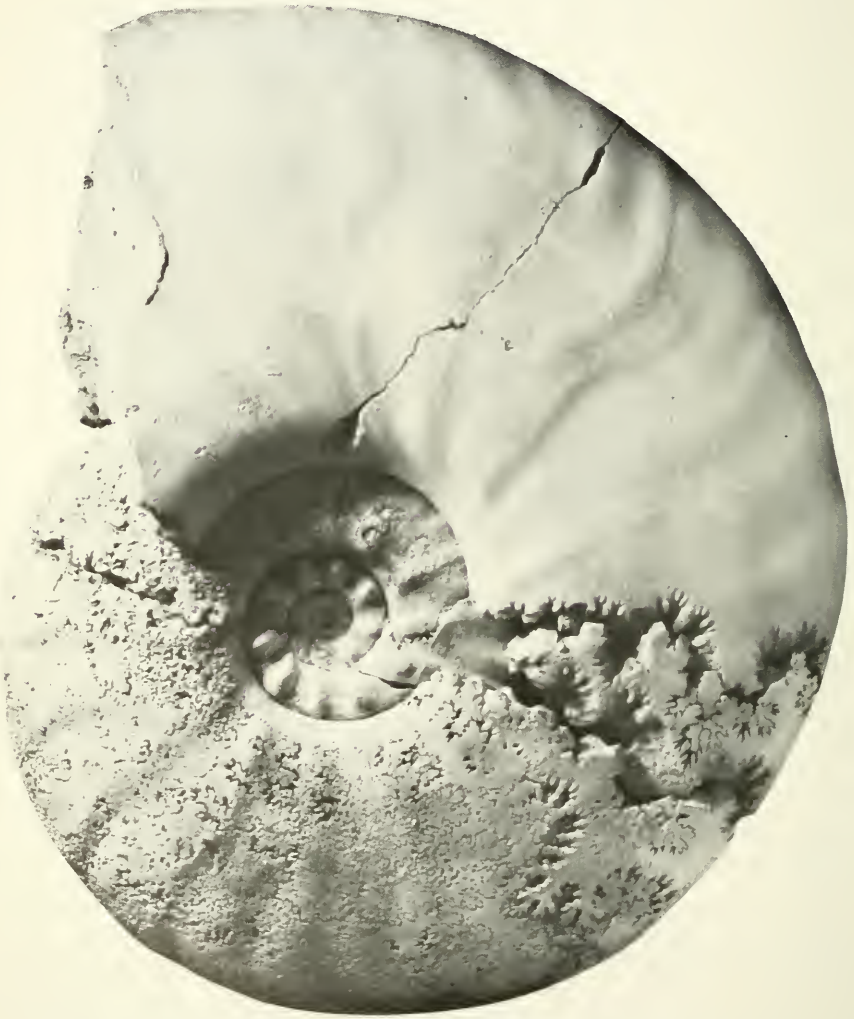


Fig. 1. *Alopecoceras ankeritterae* sp. nov. The holotype, BMNH C81266.  $\times 1$ .

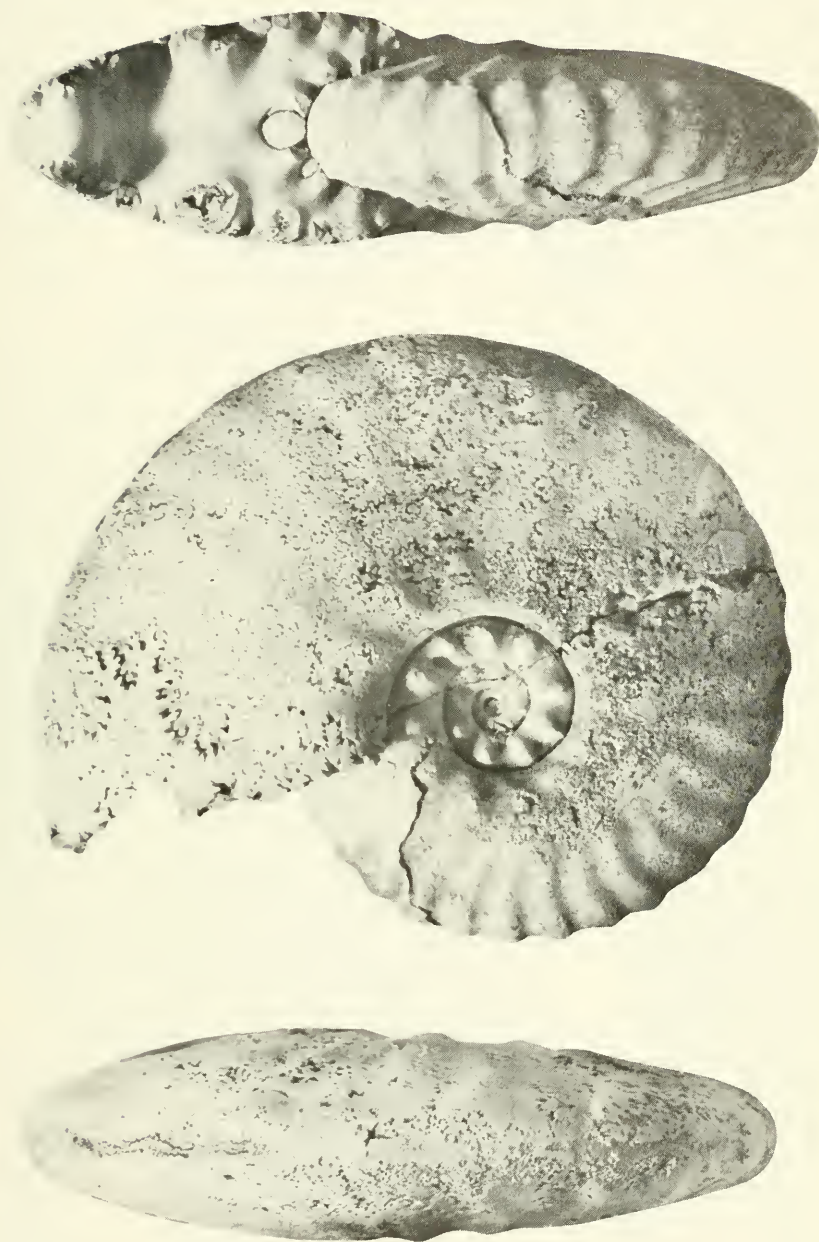


Fig. 2. *Alopecoceras ankeritterae* sp. nov. Inner whorls of the holotype, BMNH C81266.  $\times 1$ .

*Paratypes*

BMNH C81267 to C81274, SAS H54a-b, SAS A584, all from the same horizon and locality as the holotype; SAS EM152 from locality 171, on the hill slopes west-south-west of Mlambongwenya Store, Zululand, Mzinene Formation, Albian II-III, and SAS A589 from locality 53, a derelict dam site on Indambana, south of Izwehelia Farm, north of Hluhluwe, Zululand, Mzinene Formation, Albian II.



Fig. 3. *Alopecoceras ankeritterae* sp. nov. Body chamber of the holotype, BMNH C81266.  $\times 1$ .

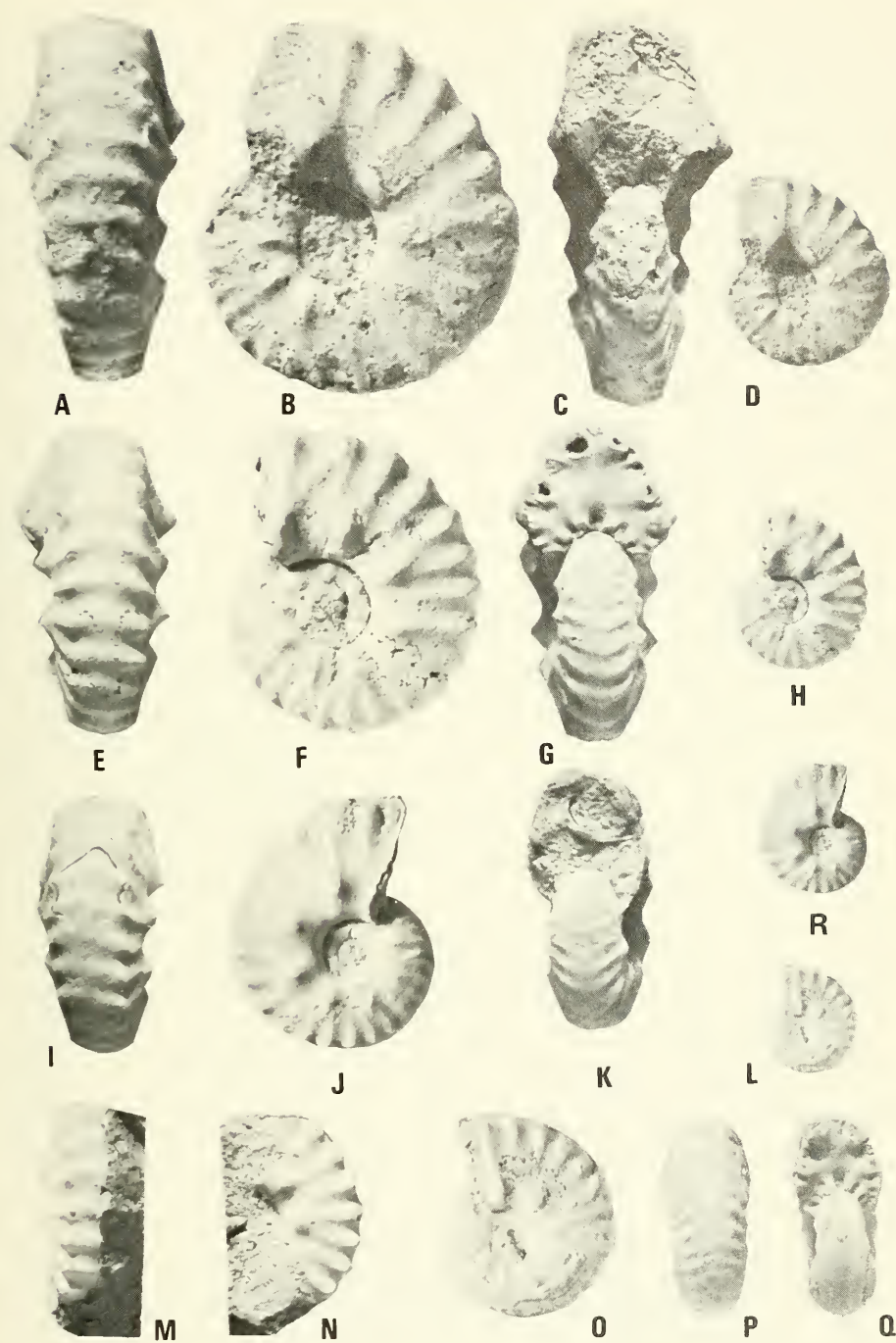


Fig. 4. *Alopoceras ankeritterae* sp. nov. Paratypes BMNH C81267-C81271. A-C, E-G, I-K, P-R  $\times 2$ ; D, H, L-O  $\times 1$ .

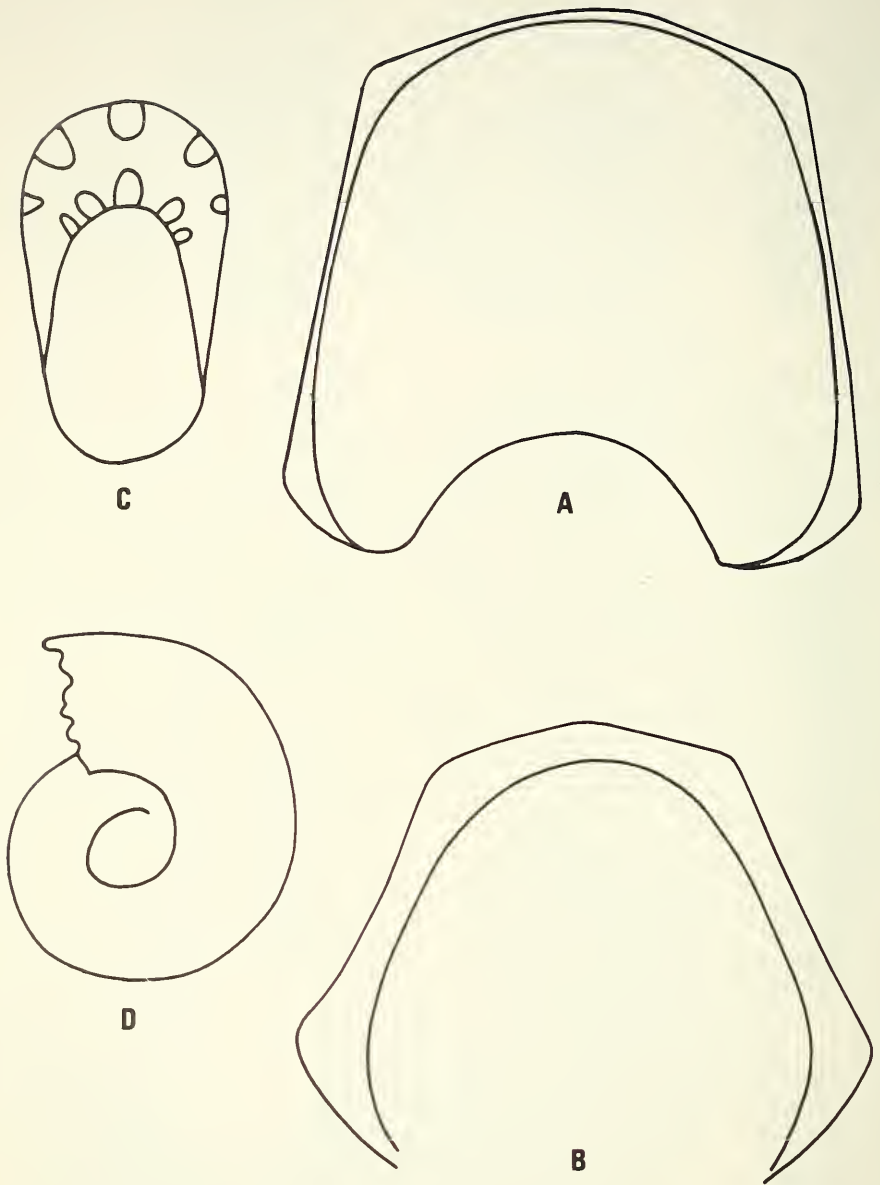


Fig. 5A-B. Whorl sections of *Alopecoceras ankeritterae* sp. nov. A. BMNH C81274.  $\times 12$ .  
 B. BMNH C81268.  $\times 6$ . C-D. Early whorls of BMNH C81274.  $\times 12$ .



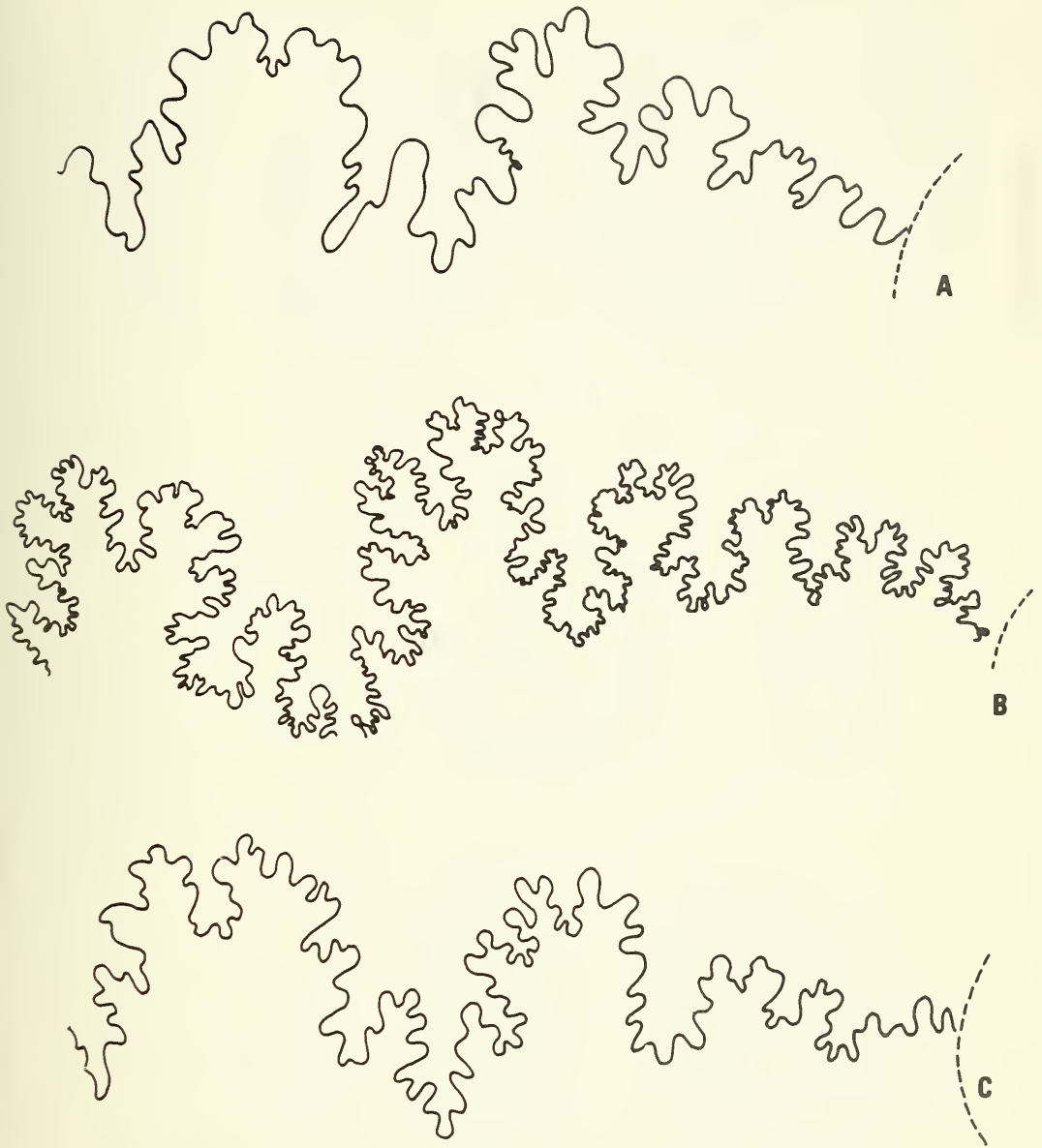


Fig. 6. A-B. *Alococeras ankeritterae* sp. nov. External sutures of BMNH C81268,  $\times 12$ , and BMNH C81266,  $\times 3$ . C. *Hatchericeras semilaeve* Leanza. External suture of a specimen in C. W. Wright's collection from Santa Cruz, Argentine.  $\times 6$ .

*Derivation of name*

The species is named for Anke Ritter of Gauting.

*Diagnosis*

As for genus.

*Dimensions*

All dimensions are in millimetres. D = diameter, Wb = whorl breadth, Wh = whorl height, U = umbilical diameter, R = ribs per whorl.

Figures in parentheses are dimensions expressed as a percentage of diameter.

		D	Wb	Wh	Wb:Wh	U	R
<i>Holotype</i>							
BMNH C81266	..	137,5(100)	35(26)	61,2(45)	0,57	34,0(25)	—
	at	97,9(100)	26,4(27)	42,8(44)	0,62	24,3(25)	32
	at	67,2(100)	21,8(32)	30,0(45)	0,72	18,7(28)	—
SAS A584	.. ..	41,9(100)	19,5(47)	18,5(44)	1,05	10,2(24)	21
BMNH C81267	..	25,5(100)	11,8(46)	10,5(41)	1,12	7,2(28)	26
SAS H54a	.. ..	23,9(100)	11,0(46)	10,9(46)	1,01	6,0(25)	26
BMNH C81268	..	22,7(100)	10,4(46)	8,7(38)	1,19	6,3(28)	26

*Description*

The early developmental stages are seen in BMNH C81274. At a diameter of 3,8 mm, the juvenile shell is cadicone, the umbilicus comprising approximately 30 per cent of the diameter, with a whorl breadth to height ratio of 1,4 (Fig. 5C–D). Ornament consists of blunt, low, rounded umbilical nodes, which first appear at a diameter of *c.* 3 mm. These occur at a rate of seven per whorl up to a diameter of 6 mm, and in this interval, low, broad folds pass across the flanks and venter, although never developing into clearly delineated ribs. By 6 mm diameter, the whorl breadth to height ratio has become 1,2.

From 6 mm (Fig. 4A–R) the whorl section changes from depressed and reniform to trapezoidal. The umbilicus is shallow, and the wall slopes gently outwards. The greatest breadth is at the umbilical bullae, and the whorl breadth to height ratio is commonly reduced to 1,1. In intercostal section the outer flanks are flattened, the ventrolateral shoulders broadly rounded and the venter very broadly rounded. In costal section, the flanks are concave at mid-flank and flattened on the outer flank, and the venter fastigiate.

There are eight to ten prominent umbilical bullae per whorl, placed well out from the umbilical seam, and these give rise to groups of two or three broad ribs, weakened at mid-flank, where additional short ribs are intercalated, and recti- to feebly rursiradiate in some cases. All ribs bear a bullate to conical tubercle at the ventrolateral shoulder, and there are commonly twenty-five to twenty-eight ribs per whorl. The ribs pass across the venter with a faint convexity, broadening and diminishing in elevation over the siphonal line.

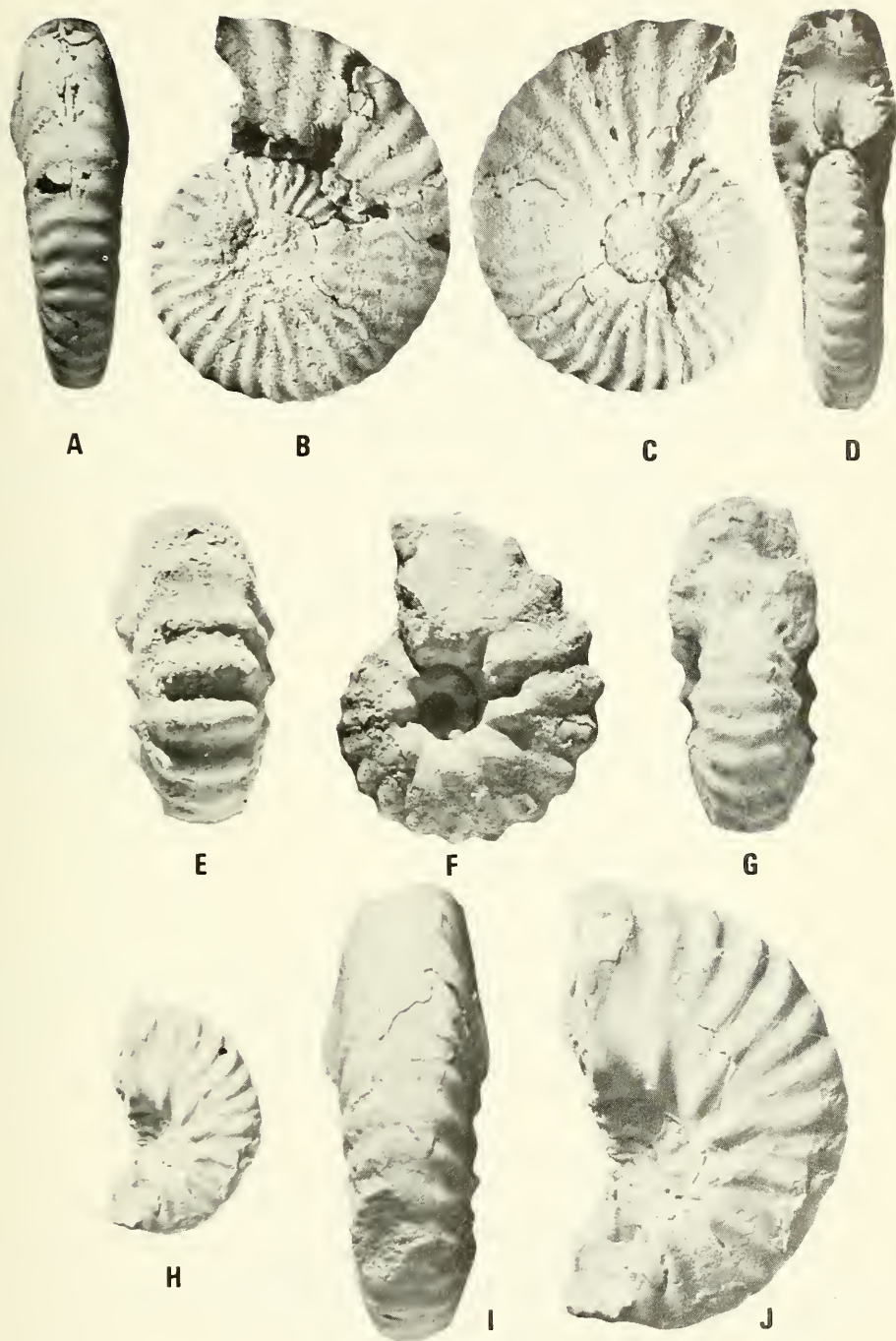


Fig. 7. A-D. *Hatchericeras semilaeve* Leanza. Inner whorls of a specimen in C. W. Wright's collection from Santa Cruz, Argentina.  $\times 1$ . E-G. *Alopecoceras ankeritterae* sp. nov. Paratype, SAS H93/3.  $\times 1$ . H-J. *Tetrahopliloides stantoni* (Anderson) cast of the holotype, from Texas Springs, Shasta County, California. H  $\times 1$ , I-J  $\times 2$ .

This general style of ornament extends to a diameter of *c.* 50 mm; as size increases, the whorls eventually change from depressed to compressed, the ribs coarsen, and, on the venter, become very thick (Fig. 2C). There is some variation in strength and number of ribs, bullae and whorl section at this stage, as can be seen from the figures.

The features of later growth are shown by the holotype (Figs 1–3). Here, from 50 mm onwards, all ornament declines, the ribs become low, broad and flexuous, arising in pairs from the bullae, whilst the whorl becomes compressed and lanceolate in section with a narrowly rounded venter which is crossed by ribs and has, as a result, an undulose profile.

On the mature body chamber (Fig. 3), coiling has become more evolute, with a low, outwards sloping, flattened umbilical wall. There is a somewhat abrupt umbilical shoulder and high, lanceolate whorls (whorl breadth to height ratio is 0,57 to 0,62) with a narrowly arched venter.

Ornament consists of irregular falcoid ribs and striae, arising from feeble umbilical bullae, separated by interspaces which may be strengthened into feeble, irregular constrictions.

The suture line (Fig. 6B) at maturity is moderately divided. E/L is broad and asymmetrically bifid, L broad and asymmetrically bifid. L/U<sub>2</sub> is large, although narrower than E/L, and asymmetrically bifid. U<sub>2</sub> is narrow and quite deeply divided.

#### Discussion

Features which separate *Alopecoceras ankeritterae* from species of other genera are fully covered in comments in the generic discussion on p. 58.

#### Occurrence

Low Middle Albian of Zululand only.

### ACKNOWLEDGEMENTS

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